



## Review and Description of Illinois Environmental Protection Agency (IEPA) XRF Sampling of Waste Materials at the Eagle Zinc Superfund Site

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DATE: June 23, 2009

USEPA has asked CH2M HILL to review the XRF data provided by the IEPA for X-Ray fluorescence (XRF) sampling completed at the Eagle Zinc Superfund Site in the Spring of 2008 and provide a description of the sampling completed. Attachments to this technical memorandum include Figure 1 – XRF locations outside of structures, Figure 2 – XRF locations within building structures, and Attachment 1 XRF and TCLP results.

IEPA completed XRF sampling over a three day period from April 30, 2008 through May 2, 2008 using a Niton corporation XRF field based site characterization instrument. A total of 65 samples were collected at locations on the eastern third of the property. Approximately one half of the samples were collected inside of the buildings and the remaining half were collected outside of the building structures. The depth of the outside samples was not reported but it appears they were likely from the upper few inches of waste materials. Ten samples were also collected and submitted for confirmatory total metals and toxicity characteristic leaching procedure (TCLP) metal analysis. The highest concentration for lead was found at Sample ID# XRF-058 detected at 56,576 ppm via the XRF. The location of this sample is in the central area between the building structures (see Figure 1). Other metals reported include arsenic, zinc, copper, nickel, chromium, barium and cadmium (see Attachment 1).

About 70% of the samples collected within the building structures exceeded USEPA's target screening level of 800 ppm while 100% of the samples collected outside of the building structures exceeded the 800 ppm screening level. Results of the confirmatory sampling results were 1.2 to 5 times greater than the field XRF results. Nine of ten TCLP samples exceeded the 5 mg/l TCLP limit for lead and the waste would be hazardous waste once excavated.





